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Table of
Contents

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Treatment of multiple sclerosis with T-cell receptor peptides: Results of a double-blind pilot trial

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A T-cell receptor (TCR) peptide vaccine from the V β 5.2 sequence expressed in multiple sclerosis (MS) plaques and on myelin basic protein (MBP)-specific T cells boosted peptide-reactive T cells in patients with progressive MS. Vaccine responders had a reduced MBP response and remained clinically stable without side effects during one year of therapy, whereas nonresponders had an increased MBP response and progressed clinically. Peptide-specific T helper 2 cells directly inhibited MBP-specific T helper 1 cells *in vitro* through the release of interleukin-10, implicating a bystander suppression mechanism that holds promise for treatment of MS and other autoimmune diseases.